



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: N.B. Cobb Attorney Docket No.: MEGC121783  
Application No.: 10/696,276 Group Art Unit: 2123  
Filed: October 29, 2003  
Title: METHOD AND APPARATUS FOR PERFORMING OPC USING MODEL CURVATURE

INFORMATION DISCLOSURE STATEMENT

Seattle, Washington 98101

February 5, 2004

TO THE COMMISSIONER FOR PATENTS:

Applicant is aware of the information listed in the attached form that may be material to the prosecution of the above-identified patent application.

1. X This application relies, under 35 U.S.C. § 120, on the earlier filing date of prior Application No. 09/457,410, filed December 7, 1999. The references listed on the attached form were submitted to and/or cited by the Patent and Trademark Office in this prior application and, therefore, are not required to be provided in this application.
2. \_\_\_\_\_ A concise explanation of the relevance of document Cite No. \_\_\_\_\_ (which is not in the English language), as presently understood by the individual designated under 37 C.F.R. § 1.56(c) most knowledgeable about its content, is provided in an English abstract appended to said document.
3. X Pursuant to 37 C.F.R. § 1.97(b), this Information Disclosure Statement is being filed within three months of the filing date of the national application (other than a CPA), within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, before the mailing date of a first Office Action on the merits, or before the mailing date of a first Office Action after the filing of an RCE.

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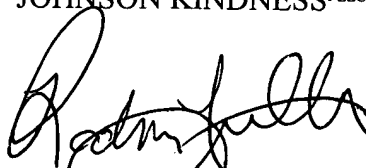
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4. X The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16, 1.17 and 1.18 which may be required during the entire pendency of the application, or credit any overpayment, to Deposit Account No. 03-1740. This authorization also hereby includes a request for any extensions of time of the appropriate length required upon the filing of any reply during the entire prosecution of this application. A copy of this document is enclosed.

Respectfully submitted,

CHRISTENSEN O'CONNOR  
JOHNSON KINDNESS<sup>PLLC</sup>

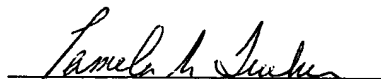


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I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

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INFORMATION CITED BY APPLICANT THAT MAY BE MATERIAL TO THE  
PROSECUTION OF THE SUBJECT APPLICATION

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CURVATURE

U.S. PATENT DOCUMENTS

*Examiner Initials	Cite No.	Document No.	Kind Code	Date (mm/dd/yyyy)	Name
	U1	5,815,685	A	09/29/1998	Kamon
	U2	5,825,647	A	10/20/1998	Tsudaka
	U3	6,033,814	A	03/07/2000	Burdorf et al.
	U4	6,080,527	A	06/27/2000	Huang et al.
	U5	6,120,952	A	09/19/2000	Pierrat et al.
	U6	6,226,781	B1	05/01/2001	Nistler et al.
	U7	6,249,904	A	06/19/2001	Cobb
	U8	6,269,472	A	07/31/2001	Garza et al.
	U9	6,301,697	A	10/09/2001	Cobb
	U10	6,312,854	A	11/06/2001	Chen et al.
	U11	6,370,679	A	04/09/2002	Chang et al.

FOREIGN PATENT DOCUMENTS

*Examiner Initial	Cite No.	Document No.	Kind Code	Publication Date (mm/dd/yyyy)	Country	English Abstract Provided	Translation Provided
None							

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OTHER INFORMATION  
(Including Author, Title, Date, Pertinent Pages, Etc.)

*Examiner Initial	Cite No.	
_____	O1	Cobb, N., et al., "Experimental Results on Optical Proximity Correction with Variable Threshold Resist Model," <i>Optical Microlithography X, The International Society for Optical Engineering 3051</i> :458-468, March 1997.
_____	O2	Cobb, N.B., "Fast Optical and Process Proximity Correction Algorithms for Integrated Circuit Manufacturing," Ph.D. dissertation, University of California at Berkeley, Spring 1988, pp. 64-71.
_____	O3	Cobb, N., et al., "Mathematical and CAD Framework for Proximity Correction," <i>Optical Microlithography IX, The International Society for Optical Engineering 2726</i> : 208-222, March 1996.
_____	O4	Benchmark Technologies, OPC Reference Standard (J111A) Reticle, October 12, 1999.
_____	O5	"Resolution Enhancement Technologies (OPC/PSM)," July 16, 2002, Mentor Graphics Internet Site, Technical Papers.
_____	O6	Randall, J., et al., "Lithography Simulation With Aerial Image - Variable Threshold Resist Model," <i>International Conference on Micro and Nano Engineering 46</i> :59-60, September 1998.
_____	O7	Rieger, M.L. and J.P. Stirniman, "Using Behavior Modeling for Proximity Correction," <i>SPIE Proceedings, The International Society for Optical Engineering, Optical/Laser Microlithography VII 2197</i> :371-376, May 1994.
_____	O8	Schellenberg, F.M., et al., "SEMATECH J111 Project: OPC Validation," <i>SPIE Proceedings, Optical Microlithography XI 3334</i> :892-911, 1998.
_____	O9	Schellenberg, F.M., "Design for Manufacturing in the Semiconductor Industry: The Litho/Design Workshops," <i>Proceedings of the 12th Int'l. Conference on VLSI Design</i> , Jan. 10-13, 1999, pp. 111-119.
_____	O10	Schellenberg, F.M., "Sub-Wavelength Lithography Using OPC," <i>Semiconductor Fabtech</i> , 9th ed., March 1999.
_____	O11	Spence, C., et al., "Integration of Optical Proximity Correction Strategies in Strong Phase Shifters Design for Poly-Gate Layers," <i>SPIE Proceedings, 19th Annual Symposium of Photomask Technology 3873</i> :277-287, 1999.

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- \_\_\_\_\_ O12 *SPIE Proceedings , 19th Annual Symposium on Photomask Technology 3873:21*, Editors: Abboud, F. et al., 1999.
- \_\_\_\_\_ O13 *SPIE Proceedings, Optical Microlithography IX 2726:15*, Editors: Fuller, G.E. et al., 1996.
- \_\_\_\_\_ O14 Stirniman, J.P. and M.L. Rieger, "Optimizing Proximity Correction for Wafer Fabrication Processes," *Proc. SPIE, 14th Annual BACUS Symposium on Photomask Technology and Management 2322:239-246*, December 1994.
- \_\_\_\_\_ O15 Washington, A., *Basic Technical Mathematics with Calculus*, 2d ed., 1970, pp. 245-247, 260-262, 505-525.

Examiner

Date Considered

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\*Examiner: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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